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(54) DOUGH KNEADING HOOK STRUCTURE AND DOUGH KNEADING MACHINE APPLYING IT

TEIGKNETHAKENSTRUKTUR UND TEIGKNETMASCHINE DAMIT

STRUCTURE DE CROCHET PÉTRISSEUR DE PÂTE ET ROBOT PÉTRISSEUR DE PÂTE L'APPLIQUANT

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Description

TECHNICAL FIELD

[0001] The patent application relates to the technical field of automatic dough kneading. Specifically, it relates to a kneading dough hook assembly and the kneading dough machine containing the same.

BACKGROUND

[0002] The automatic kneading dough machine is a domestic food processing tool. The flour and water are placed in the mixing pot of the kneading dough machine. The mixing pot is provided with a kneading dough hook. The kneading dough hook rotates in the mixing pot driving by the driving device, in order to mix flour and water and knead dough, replacing manual kneading dough. It is time-saving, convenient and healthy. However, in the process of kneading the dough, conventional kneading dough machines use a single kneading dough hook to complete the kneading dough. During the operation, the dough tends to rotate together with the kneading dough hook, causing low efficiency. The effect of kneading dough is not ideal. Further, under the unbalanced force of the single kneading dough hook, the machine vibrates and shakes with a large extent.

[0003] D1 (US4337000A) discloses two-spindle planetary kitchen mixer-kneader and anti-climb dough hooks therefor.

[0004] D2 (DE 2500444A1) discloses a whipper having a crank secured to a gear housing assembly which in turn orbitally drives a beater plate.

SUMMARY

[0005] The primary object of this patent application is to provide a kneading dough hook assembly, which can overcome the deficiencies of the conventional kneading dough hook and provides good kneading dough effect.

[0006] Another object of the present patent application is to provide a kneading dough machine, which can overcome the deficiencies of the conventional kneading dough machine, provide ideal kneading dough results, and reduce vibration and shaking.

[0007] To achieve the above objects, the patent application adopts the following technical solutions:

A kneading dough hook assembly according to claim 1, including a mounting frame a first kneading dough hook, a second kneading dough hook, a first fool-proof mechanism and a second fool-proof mechanism. The mounting frame includes a first mounting rod and a second mounting rod. The first kneading dough hook is mounted on the first mounting rod. The second kneading dough hook is mounted on the second mounting rod. The first fool-proof mechanism is provided between the first kneading dough hook and the first mounting rod. The second fool-proof mechanism is provided between the second kneading dough hook and the second mounting rod.

[0008] The first fool-proof mechanism includes a first recess and a first projection. The first recess and the first projection are provided on the first mounting rod and first kneading dough hook respectively. The second fool-proof mechanism includes a second recess and a second projection. The second recess and the second projection are provided on the second mounting rod and second kneading dough hook respectively.

[0009] The first recess is provided on the first mounting rod, the first projection is provided on the first kneading dough hook. The second recess is provided on the second mounting rod, and the second projection is provided on the second kneading dough hook.

[0010] The position of the first recess is opposite to the position of the second recess.

[0011] The kneading dough hook assembly further includes a transmission mechanism which is connected to the first kneading dough hook and the second kneading dough hook. The transmission mechanism drives first kneading dough hook and the second kneading dough hook to rotate simultaneously.

[0012] The transmission mechanism includes a gear disk, a sun gear wheel, a first planetary gear wheel and a second planetary gear wheel. The gear disk is provided on the mounting frame. Internal gears are provided on an inner wall of the gear disk. The sun gear wheel connects to a power unit. The first planetary gear wheel meshes with the sun gear wheel and the internal gears of the gear disk simultaneously. The first planetary gear wheel is connected to the first kneading dough hook. The second planetary gear wheel meshes with the sun gear wheel and the internal gears of the gear disk simultaneously. The second planetary gear wheel is connected to the second kneading dough hook.

[0013] An upper part of the first dough hook is shaped as a first knife handle shaft. A lower end of the first mounting rod is shaped as a first sleeve. The first knife handle shaft is inserted into the first sleeve.

[0014] An upper portion of the second dough hook is shaped as a second knife handle shaft. A lower end of the second mounting rod is shaped as a second sleeve. The second knife handle shaft is inserted into the second sleeve.

[0015] The first kneading dough hook includes an upper part, a middle part and a lower part. The middle part includes three contour lines which are not in a same space plane. The lower part is shaped as a curved piece.

[0016] The second kneading dough hook includes an upper portion, an upper middle portion, a middle portion and a bottom portion. A side of the upper middle portion is shaped as a small arcuate curved surface. The middle portion is shaped as a twisted curve and the bottom portion is shaped as a hook bending upward.

[0017] A first mounting post is provided on the upper part of the first kneading dough hook. A second mounting post is provided on the upper portion of the second

kneading dough hook. A first L-shaped mounting groove which corresponds to the fist mounting post is provided on the first mounting rod and a second L-shaped mounting groove which corresponds to the second mounting post is provided on the second mounting rod.

[0018] A kneading dough machine includes the above kneading dough hook assembly.

[0019] With the above technical solution, the kneading dough hook assembly uses two hooks instead of a single hook. The quality, efficiency, energy use rate of the patent application which uses two hooks is better than that of the single-hook. With the same amount of flour, the time consumed by the present patent application is shorter than that of the single hook. The patent application with two hooks realizes a more comprehensive function and kneads the dough efficiently. Due to the cooperation of the two hooks, it produces 6000 contact points. The more contact points, the better as described. The two hooks simulate and even surpass the capabilities of kneading dough by hand. With two hooks simulating all the action of kneading dough by hand, such as kneading, rubbing, stirrings, pressing, pulling, squeezing, pushing, and etc., the present patent application has a high efficiency. The effect of kneading dough is good and the stability is prominent. The two hooks not only have a good effect and quality but also represent a progress and surpass. Further, the second kneading dough hook is able to balance the vibration caused by the rotation of the first kneading dough hook, making the machine more stable, reducing the noise caused by vibration, and improving work stability during the operation.

BRIEF DESCRIPTION OF DRAWINGS

[0020]

Figure 1 is an exploded perspective view of a kneading dough hook assembly according to an embodiment of the present patent application;

Figure 2 shows the assembled view of kneading dough hook assembly according to the present patent application;

Figure 3 is a partially enlarged view of Figure 2;

Figure 4 shows the first structure of the first kneading dough hook according to the present patent application;

Figure 5 shows the second structure of first kneading dough hook according to the present patent application;

Figure 6 shows the first structure of the second kneading dough hook according to the present patent application;

Figure 7 shows the second structure of the second kneading dough hook according to the present patent application;

Figure 8 shows a part of the kneading dough machine according to the present patent application; and

Figure 9 shows a curve by combing the movement path lines of two kneading dough hooks.

DETAILED DESCRIPTION

[0021] In order to understand the purposes, technical solutions and advantages of the patent application, a detailed description of the patent application is provided accompanying drawings and embodiments of the patent application. It should be understood that the specific embodiments described herein are only used to explain the patent application and are not intended to limit the patent application.

[0022] Referring to Figures 1 and 2 the present patent application discloses a kneading dough hook assembly. The kneading dough hook assembly includes a mounting frame 1, a first kneading dough hook 2, a second kneading dough hook 3, two fool-proof mechanisms 4 and a transmission mechanism 5.

[0023] The mounting frame 1 has two mounting rods 11, 12. The lower ends of the mounting rods 11, 12 are shaped as sleeves 111, 121. Further, the lower ends of the mounting rods 11, 12 are also provided with L-shaped mounting grooves 112, 122. In the present embodiment, the mounting grooves 112, 122 are arranged in pairs.

[0024] Referring to Figures 4 and 5, the first kneading dough hook 2 has an upper part 21, a middle part 22 and a lower part 23. The upper part 21 is shaped as a knife handle shaft. The knife handle shaft is provided with mounting posts 211. The mounting posts 211 correspond to L-shaped mounting groove 112 provided on the mounting rod 11. The middle part 22 includes three contour lines 221, 222 and 223 which are not in the same space plane. The lower part 23 is shaped as a curved piece. In the specific implementation, it can be in the shape of an ear or a palm, which is easy for kneading dough.

[0025] Referring to Figure 2, the knife handle shaft of the upper part 21 is inserted into the sleeve 111 of the lower end of the mounting rod 11. The mounting post 211 is just located in the mounting rod 112. The knife handle shaft can effectively avoid mixing the metal powder caused by wearing the knife into the food in the operating state, ensuring security. Further, the middle part 22 of the first kneading dough hook 2, which includes three contour lines 221, 222 and 223 being not in the same space plane, makes the first kneading dough hook 2 cut into the dough easily during the rotation regardless of angle. The resistance of the knife tool is dispersed during kneading dough. It is fully taken into account the forces during operation by using fluid force mechanics. With two hooks simulating all the action of kneading dough by hand, such as kneading, rubbing, stirring, pressing, pulling, squeezing, pushing, and etc., it has high efficiency. The effect of kneading dough is good and the stability is prominent. The lower part 23 is in the shape of ear. It is the core part of the entire first kneading dough hook 2 and the most important function part of the entire hook. During rotation, it produces rubbing and squeezing and

the back and forth force. The total contact points with the pot during rotating one cycle are 2160. By using the second kneading dough hook 3, its role and effect will be more perfectly reflected.

[0026] Referring to Figure 2, the kneading dough hook assembly further includes a transmission mechanism 5 which is connected to the first kneading dough hook 2 and the second kneading dough hook 3. The transmission mechanism 5 drives the first kneading dough hook 2 and the second kneading dough hook 3 to rotate simultaneously.

[0027] The transmission mechanism 5 includes a gear disk 51, a sun gear wheel 52, a first planetary gear wheel 53 and a second planetary gear wheel 54. When assembled, the gear disk 51 is provided on the mounting frame 1. The inner wall of the gear disk 51 has internal gears 511. The sun gear wheel 52 connects to the power unit (not shown in the Figures) through the transmission shaft 6. The first planetary gear wheel 53 meshes with the sun gear wheel 52 and the internal gears 511 of the gear disk 51. The first planetary gear wheel 53 is connected to the first kneading dough hook 2. The second planetary gear wheel 54 meshes with the sun gear wheel 52 and the internal gears 511 of the gear disk 51. The second planetary gear wheel 54 is connected to the second kneading dough hook 3. In practice, the positions of the first kneading dough hook 2 and the second kneading dough hook 3 are interchangeable.

[0028] During operation, the power unit drives the transmission shaft 6 to rotate. The transmission shaft 6 drives the sun gear wheel 52 to rotate. The sun gear wheel 52 drives the first planetary gear wheel 53 and the second planetary gear wheel 54 to rotate simultaneously. In other words, the first kneading dough hook 2 and the second kneading dough hook 3 rotate simultaneously to knead dough. The first planetary gear wheel 53 and the second planetary gear wheel 54 are rotated along the inner wall of the gear disk 51.

[0029] Referring to Figures 6 and 7, the second kneading dough hook 3 includes an upper portion 31, an upper middle portion 32, a middle portion 33 and a bottom portion 34. The upper portion 31 is shaped as a knife handle shaft. The knife handle shaft is provided with a mounting post 311. The mounting post 311 corresponds to L-shaped mounting groove 122 provided on the mounting rod 12. One side of the upper middle portion 32 is shaped as a small arcuate curved surface 321. The middle portion 33 is shaped as a twisted curve. The bottom portion 34 is shaped as a hook bending upward.

[0030] During operation, the knife handle shaft of the upper portion 31 is inserted into the sleeve 121 of the mounting rod 12. The mounting post 311 is exactly located in the L-shaped mounting groove 122. The knife handle shaft can effectively avoid mixing metal powder caused by wearing the knife into the food in the operating stale, ensuring security. The curved surface 321 of one side of the upper middle portion 32 produces a pressure force during rotating the second kneading dough hook liking a man's hand pressing dough down. The curved design of the middle portion 33 is the main effect part of the second kneading dough hook 3, and is also the important function part of the entire second kneading dough hook 3. The shape of each curved line of the middle portion 33 has fully taken into account of the resistance of the second kneading dough hook 3 during the movement and is in the reasonable scientific mechanics streamline design. Its main role is to rub. During the rotation (rotating around Its own axis and revolving around the axis of the sun gear wheel), it produces a series of actions, such as kneading, rubbing, pulling and squeezing, simulating the action of kneading dough by palm. The bottom portion 34 is an essential part of the second kneading dough hook. It produces a rotary extrusion pressure during the rotation, turning the entire dough from the inside over, which is equivalent to a hand. During using the kneading dough machine, the second kneading dough hook 3 produces a total of 3840 contact points (the more contact points, the better effect and quality of kneading dough) during the whole movement (rotation and revolution).

[0031] Referring to Figures 2 and 3, there are two fool-proof mechanisms 4, which are located between the first kneading dough hook 2 and the mounting rod 11 and between the second kneading dough hook 3 and the mounting rod 11.

[0032] In particular, the fool-proof mechanism 4 includes a recess 41 and a projection 42. When implemented, the recess 41 is provided on the kneading dough hook, and the projection 42 is provided on the mounting rod. Alternately, the recess 41 is provided on the mounting rod, and the projection 42 is provided on the second kneading dough hook. In the present embodiment, the recess 41 of one fool-proof mechanism 4 is provided on the mounting rod 11, the projection 42 of this fool-proof mechanism 4 is provided on the first kneading dough hook 2. The recess 41 of another fool-proof mechanism 4 is provided on the mounting rod 12, the projection 42 of this another fool-proof mechanism 4 is provided on the second kneading dough hook 3. The position of the recess 42 on the mounting rod 11 is in an opposite direction of the position of the recess 42 on the mounting rod 12. This design greatly improves the efficiency and convenience for the customers, and avoids the collision phenomenon of the two kneading dough hooks 2, 3 caused by mis-angle installation. In actual use, the first kneading dough hook 2 can be mounted on the mounting rod 11, and also can be mounted on the mounting rod 12. Similarly, the second kneading dough hook 3 can be mounted on the mounting rod 11, and also can be mounted on the mounting the rod 12. In other words, the mounting positions of the first kneading dough hook 2 and the second kneading dough hook 3 can be interchanged. Due to the fool-proof mechanism 4, the first kneading dough hook 2 and the second kneading dough hook 3 will not cause the collision phenomenon even they are exchanged.

[0033] Referring to Figure 8, the present patent application also discloses a kneading dough machine which

includes a driving device (not shown in the Figures), a transmission device, a container 7 and the above-described kneading dough hook assembly.

[0034] In the present embodiment, the planetary gear wheels are used for performing power transmission.

[0035] Figure 9 shows a curve by combing the movement path lines of two kneading dough hooks. It will continue moving along this curve line periodically repeated. The size and blade angle of two kneading dough hooks are assigned correctly. Kneading dough is complete during using the kneading dough machine. The result of kneading dough is good.

[0036] The above embodiment does not intend to limit the scope of the claims.

Claims

1. A kneading dough hook assembly comprising:

a mounting frame (1);
a first kneading dough hook (2);
a second kneading dough hook (3);
a first fool-proof mechanism (4); and
a second fool-proof mechanism (4);
wherein the mounting frame (1) comprises a first mounting rod (11) and a second mounting rod (12), the first kneading dough hook (2) is mounted on the first mounting rod (11), the second kneading dough hook (3) is mounted on the second mounting rod (12);
wherein a first mounting post (211) is provided on an upper part (21) of the first kneading dough hook (2), a second mounting post (311) is provided on an upper portion (31) of the second kneading dough hook (3), a first L-shaped mounting groove (112) which corresponds to the first mounting post (211) is provided on the first mounting rod (11) and a second L-shaped mounting groove (122) which corresponds to the second mounting post (311) is provided on the second mounting rod (12);
wherein the first fool-proof mechanism (4) is provided between the first kneading dough hook (2) and the first mounting rod (11); and the second fool-proof mechanism (4) is provided between the second kneading dough hook (3) and the second mounting rod (12);
wherein the first fool-proof mechanism (4) comprises a first recess (41) and a first projection (42), the first recess (41) is provided on the first mounting rod (11), and the first projection (42) is provided on the first kneading dough hook (2); and the second fool-proof mechanism (4) comprises a second recess (41) and a second projection (42), the second recess (41) is provided on the second mounting rod (12), and the second projection (42) is provided on the second kneading dough hook (3);
wherein a position of the first recess (41) is opposite to a position of the second recess (41).

2. The kneading dough hook assembly of claim 1, further comprising a transmission mechanism (5) which is connected to the first kneading dough hook (2) and the second kneading dough hook (3); wherein the transmission mechanism (5) drives the first kneading dough hook (2) and the second kneading dough hook (3) lo rotate simultaneously.

3. The kneading dough hook assembly of claim 2, wherein the transmission mechanism (5) comprises a gear disk (51), a sun gear wheel (52), a first planetary gear wheel (53) and a second planetary gear wheel (54); the gear disk (51) is provided on the mounting frame (1); internal gears are provided on an inner wall of the gear disk (51); the sun gear wheel (52) connects to a power unit; the first planetary gear wheel (53) meshes with the sun gear wheel (52) and the internal gears of the gear disk (51) simultaneously; the first planetary gear wheel (53) is connected to the first kneading dough hook (2); the second planetary gear wheel (54) meshes with the sun gear wheel (52) and the internal gears of the gear disk (51) simultaneously; the second planetary gear wheel (54) is connected to the second kneading dough hook (3).

4. The kneading dough hook assembly according to my one of claims 1-3, wherein the upper part (21) of the first kneading dough hook (2) is shaped as a first knife handle shaft, a lower end of the first mounting rod (11) is shaped as a first sleeve (111), and the first knife handle shaft is inserted into the first sleeve (111).

5. The kneading dough hook assembly of claim 4, wherein the upper portion (31) of the second kneading dough hook (3) is shaped as a second knife handle shaft, a lower end of the second mounting rod (12) is shaped as a second sleeve (121), and the second knife handle shaft is inserted into the second sleeve (121).

6. The kneading dough hook assembly of claim 4, wherein the first kneading dough hook (2) comprises the upper part (21), a middle part (22) and a lower part (23), the middle part (22) comprises three contour lines (221, 222, 223) which are not in a same space plane, and the lower part (23) is shaped as a curved piece.

7. The kneading dough hook assembly of claim 6, wherein the second kneading dough hook (3) comprises the upper portion (31), an upper middle portion (32), a middle portion (33) and a bottom portion (34),

a side of the upper middle portion (32) is shaped as a small arcuate curved surface (321), the middle portion (33) is shaped as a twisted curve and the bottom portion (34) is shaped as a hook bending upward.

8. A kneading dough machine comprising the kneading dough hook assembly of any one of claims 1 to 7.

Patentansprüche

1. Teigknethakenanordnung, umfassend:

einen Befestigungsrahmen (1);
einen ersten Teigknethaken (2);
einen zweiten Teigknethaken (3);
eine erste betriebssichere Einrichtung (4); und
eine zweite betriebssichere Einrichtung (4);
wobei der Befestigungsrahmen (1) eine erste Befestigungsstange (11) und eine zweite Befestigungsstange (12) umfasst, der erste Teigknethaken (2) an der ersten Befestigungsstange (11) befestigt ist, der zweite Teigknethaken (3) an der zweiten Befestigungsstange (12) befestigt ist;
wobei ein erster Befestigungsstift (211) an einem oberen Teil (21) des ersten Teigknethakens (2) bereitgestellt ist, ein zweiter Befestigungsstift (311) an einem oberen Abschnitt (31) des zweiten Teigknethakens (3) bereitgestellt ist, eine erste L-förmige Befestigungsnut (112), die dem ersten Befestigungsstift (211) entspricht, an der ersten Befestigungsstange (11) bereitgestellt ist und eine zweite L-förmige Befestigungsnut (122), die dem zweiten Befestigungsstift (311) entspricht, an der zweiten Befestigungsstange (12) bereitgestellt ist;
wobei die erste betriebssichere Einrichtung (4) zwischen dem ersten Teigknethaken (2) und der ersten Befestigungsstange (11) bereitgestellt ist; und die zweite betriebssichere Einrichtung (4) zwischen dem zweiten Teigknethaken (3) und der zweiten Befestigungsstange (12) bereitgestellt ist;
wobei die erste betriebssichere Einrichtung (4) eine erste Aussparung (41) und einen ersten Vorsprung (42) umfasst, die erste Aussparung (41) an der ersten Befestigungsstange (11) bereitgestellt ist, und der erste Vorsprung (42) an dem ersten Teigknethaken (2) bereitgestellt ist; und die zweite betriebssichere Einrichtung (4) eine zweite Aussparung (41) umfasst und einen zweiten Vorsprung (42), die zweite Aussparung (41) an der zweiten Befestigungsstange (12) bereitgestellt ist, und der zweite Vorsprung (42) an dem zweiten Teigknethaken (3) bereitgestellt ist;
wobei eine Position der ersten Aussparung (41) gegenüber einer Position der zweiten Aussparung (41) liegt.

2. Teigknethakenanordnung nach Anspruch 1, ferner umfassend eine Getriebeeinrichtung (5), die mit dem ersten Teigknethaken (2) und dem zweiten Teigknethaken (3) verbunden ist; wobei die Getriebeeinrichtung (5) den ersten Teigknethaken (2) und den zweiten Teigknethaken (3) antreibt, gleichzeitig zu rotieren.

3. Teigknethakenanordnung nach Anspruch 2, wobei die Getriebeeinrichtung (5) eine Zahnscheibe (51), ein Sonnenzahnrad (52), ein erstes Planetenzahnrad (53) und ein zweites Planetenzahnrad (54) umfasst; die Zahnscheibe (51) an dem Befestigungsrahmen (1) bereitgestellt ist; Innenverzahnungen an einer inneren Wand der Zahnscheibe (51) bereitgestellt sind; das Sonnenzahnrad (52) eine Antriebseinheit verbindet; das erste Planetenzahnrad (53) das Sonnenzahnrad (52) und gleichzeitig die Innenverzahnungen der Zahnscheibe (51) kämmt; das erste Planetenzahnrad (53) verbunden ist mit dem ersten Teigknethaken (2); das zweite Planetenzahnrad (54) das Sonnenzahnrad (52) und gleichzeitig die Innenverzahnungen der Zahnscheibe (51) kämmt; das zweite Planetenzahnrad (54) mit dem zweiten Teigknethaken (3) verbunden ist.

4. Teigknethakenanordnung nach einem der Ansprüche 1-3, wobei der obere Teil (21) des ersten Teigknethakens (2) wie ein erster Messergriffstiel geformt ist, ein unteres Ende der ersten Befestigungsstange (11) wie eine erste Hülse (111) geformt ist, und der erste Messergriffstiel in die erste Hülse (111) eingebracht ist.

5. Teigknethakenanordnung nach Anspruch 4, wobei der obere Abschnitt (31) des zweiten Teigknethakens (3) wie ein zweiter Messergriffstiel geformt ist, ein unteres Ende der zweiten Befestigungsstange (12) wie eine zweite Hülse (121) geformt ist, und der zweite Messergriffstiel in die zweite Hülse (121) eingebracht ist.

6. Teigknethakenanordnung nach Anspruch 4, wobei der erste Teigknethaken (2) den oberen Teil (21), einen mittleren Teil (22) und einen unteren Teil (23) umfasst, wobei der mittlere Teil (22) drei Konturlinien (221, 222, 223) umfasst, die nicht in einer gleichen Raumebene liegen, und der untere Teil (23) wie ein gekrümmtes Stück geformt ist.

7. Teigknethakenanordnung nach Anspruch 6, wobei der zweite Teigknethaken (3) den oberen Abschnitt (31), einen oberen mittleren Abschnitt (32), einen mittleren Abschnitt (33) und einen Bodenabschnitt (34) umfasst, wobei eine Seite des oberen mittleren

Abschnitts (32) wie eine kleine bogenförmig gekrümmte Oberfläche (321) geformt ist, der mittlere Abschnitt (33) wie eine verdrehte Krümmung geformt ist und der Bodenabschnitt (34) wie ein sich aufwärts biegender Haken geformt ist.

8. Teigknethakenmaschine, umfassend die Teigknethakenanordnung nach einem der Ansprüche 1 bis 7.

Revendications

1. Ensemble crochet pétrisseur de pâte comprenant :

un cadre de montage (1) ;
un premier crochet pétrisseur de pâte (2) ;
un second crochet pétrisseur de pâte (3) ;
un premier mécanisme infaillible (4) ; et
un second mécanisme infaillible (4) ; et
dans lequel le cadre de montage (1) comprend une première tige de montage (11) et une seconde tige de montage (12), le premier crochet pétrisseur de pâte (2) est monté sur la première tige de montage (11), le second crochet pétrisseur (3) est monté sur la seconde tige de montage (12) ;
dans lequel un premier montant de montage (211) est prévu sur une partie supérieure (21) du premier crochet pétrisseur de pâte (2), un second montant de montage (311) est prévu sur une partie supérieure (31) du second crochet pétrisseur de pâte (3), une première rainure de montage en forme de L (112) qui correspond au premier montant de montage (211) est prévue sur le premier montant de montage (11) et une seconde rainure de montage en forme de L(122) qui correspond au second montant de montage (311) est prévue sur la seconde tige de montage (12) ;
dans lequel le premier mécanisme infaillible (4) est prévu entre le premier crochet pétrisseur de pâte (2) et la première tige de montage (11); et le second mécanisme infaillible (4) est prévu entre le second crochet pétrisseur de pâte (3) et la seconde tige de montage (12) ;
dans lequel le premier mécanisme infaillible (4) comprend un premier évidement (41) et une première saillie (42), le premier évidement (41) est prévu sur la première tige de montage (11), et la première saillie (42) est prévue sur le premier crochet pétrisseur de pâte (2) ; et le second mécanisme infaillible (4) comprend un second évidement (41) et une seconde saillie (42), le second évidement (41) est prévu sur la seconde tige de montage (12) et la seconde saillie (42) est prévue sur le second crochet pétrisseur de pâte (3) ;
dans lequel une position du premier évidement (41) est opposée à une position du second évidement (41).

2. Ensemble crochet pétrisseur de pâte selon la revendication 1, comprenant en outre un mécanisme de transmission (5) qui est relié au premier crochet pétrisseur de pâte (2) et au second crochet pétrisseur de pâte (3) ; dans lequel le mécanisme de transmission (5) amène le premier crochet pétrisseur de pâte (2) et le second crochet pétrisseur de pâte (3) à tourner simultanément.

3. Ensemble crochet pétrisseur de pâte selon la revendication 2, dans lequel le mécanisme de transmission (5) comprend un disque d'engrenage (51), une roue dentée solaire (52), une première roue dentée planétaire (53) et une seconde roue dentée planétaire (54) ; le disque d'engrenage (51) est prévu sur le cadre de montage (1) ; des engrenages internes sont prévus sur une paroi intérieure du disque d'engrenage (51) ; la roue dentée solaire (52) est reliée à une unité de puissance ; la première roue dentée planétaire (53) s'engrène simultanément avec la roue dentée solaire (52) et les engrenages internes du disque d'engrenage (51) ; la première roue dentée planétaire (53) est reliée au premier crochet pétrisseur (2) ; la seconde roue dentée planétaire (54) s'engrène simultanément avec la roue dentée solaire (52) et les engrenages internes du disque d'engrenage (51) ; la seconde roue d'engrenage planétaire (54) est reliée au second crochet pétrisseur de pâte (3).

4. Ensemble crochet pétrisseur de pâte selon l'une quelconque des revendications 1 à 3, dans lequel la partie supérieure (21) du premier crochet pétrisseur (2) a la forme d'une première tige de manche de couteau, une extrémité inférieure de la première tige de montage (11) a la forme d'un premier manchon (111) et la première tige de manche de couteau est insérée dans le premier manchon (111).

5. Ensemble crochet pétrisseur de pâte selon la revendication 4, dans lequel la partie supérieure (31) du second crochet pétrisseur de pâte (3) a la forme d'une seconde tige de manche de couteau, une extrémité inférieure de la seconde tige de montage (12) a la forme d'un second manchon (121) et la seconde tige de manche de couteau est insérée dans le second manchon (121).

6. Ensemble crochet pétrisseur de pâte selon la revendication 4, dans lequel le premier crochet pétrisseur de pâte (2) comprend la partie supérieure (21), une partie médiane (22) et une partie inférieure (23), la partie médiane (22) comprend trois lignes de contour (221, 222, 223) qui ne sont pas dans un même plan d'espace, et la partie inférieure (23) a la forme d'une

pièce incurvée.

7. Ensemble crochet pétrisseur selon la revendication 6, dans lequel le second crochet pétrisseur (3) comprend la partie supérieure (31), une partie médiane supérieure (32), une partie médiane (33) et une partie inférieure (34), un côté de la partie médiane supérieure (32) a la forme d'une petite surface incurvée arquée (321), la partie médiane (33) a la forme d'une courbe torsadée et la partie inférieure (34) a la forme d'un crochet se courbant vers le haut.

8. Machine à pétrir la pâte comprenant l'ensemble crochet pétrisseur de pâte selon l'une quelconque des revendications 1 à 7.

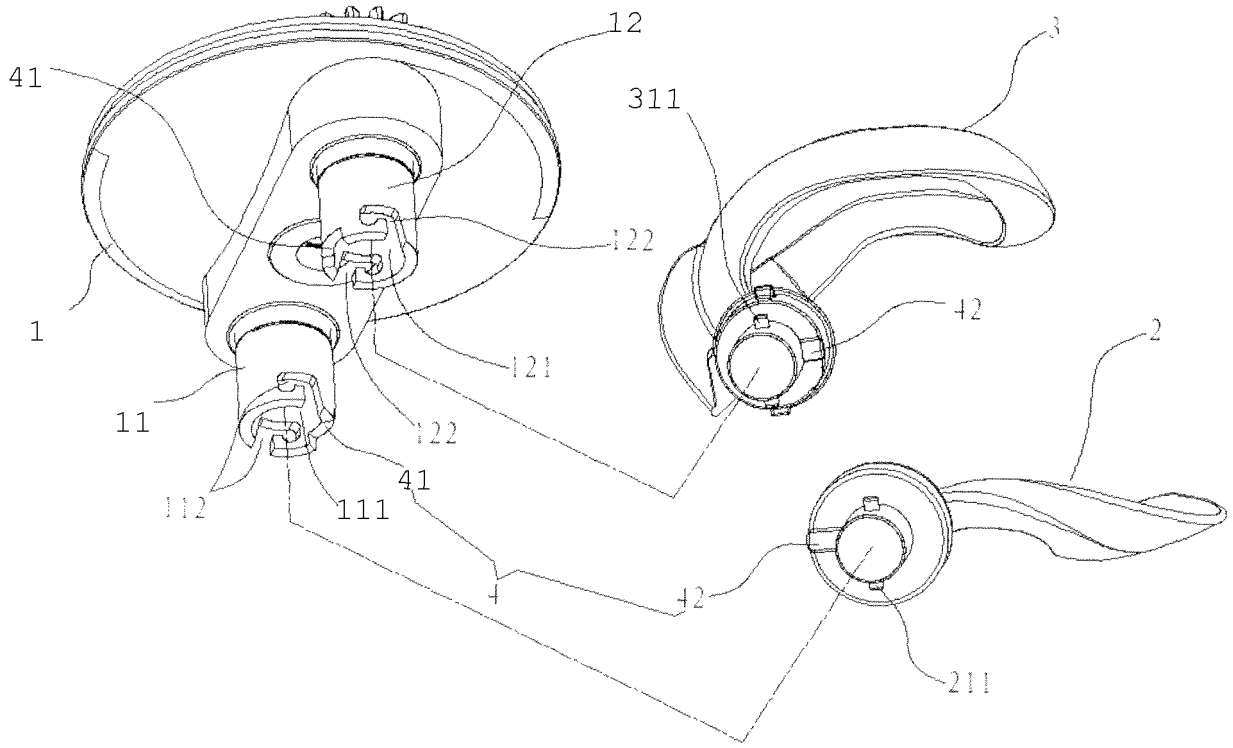


Figure 1

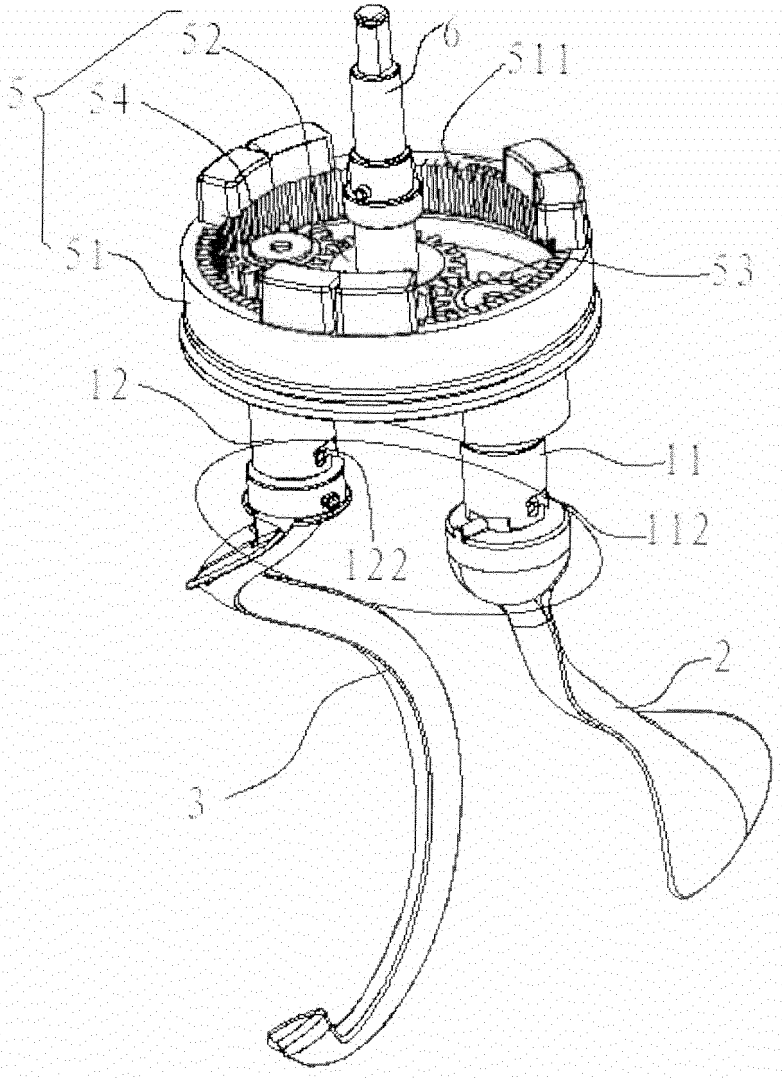


Figure 2

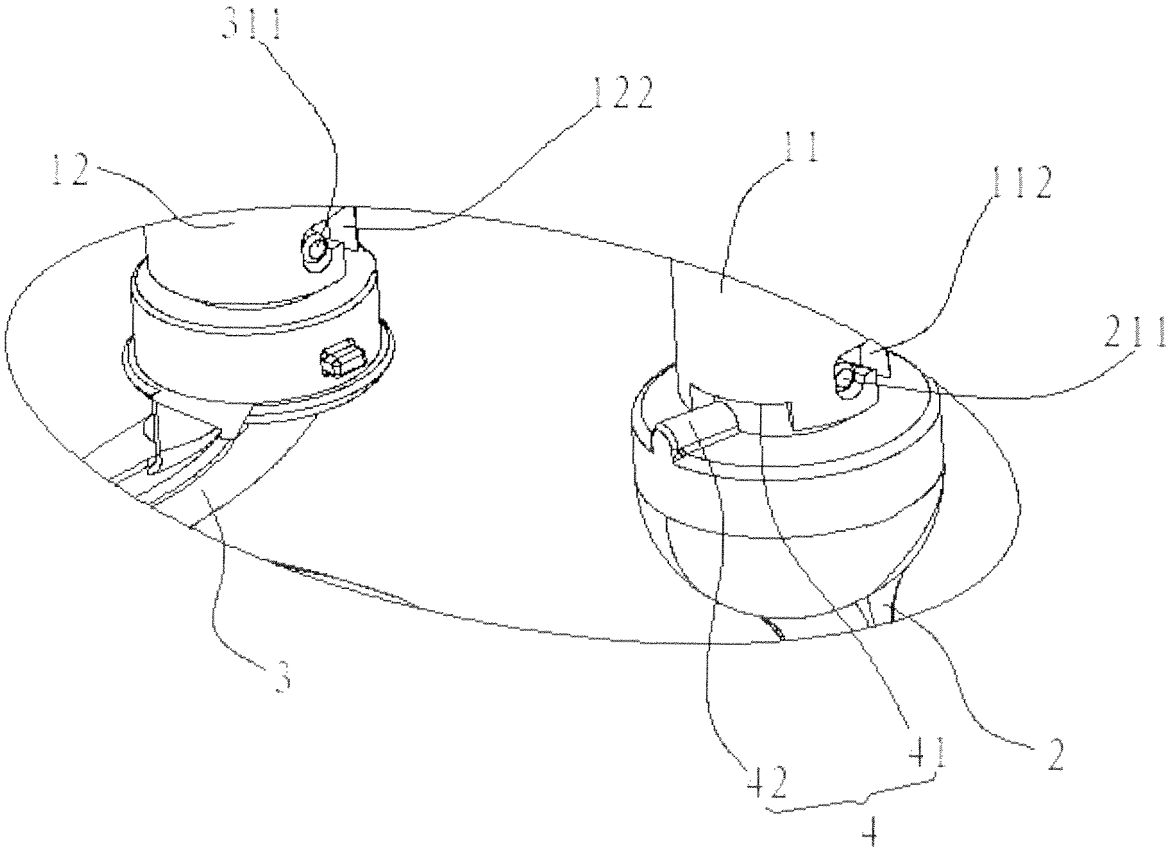


Figure 3

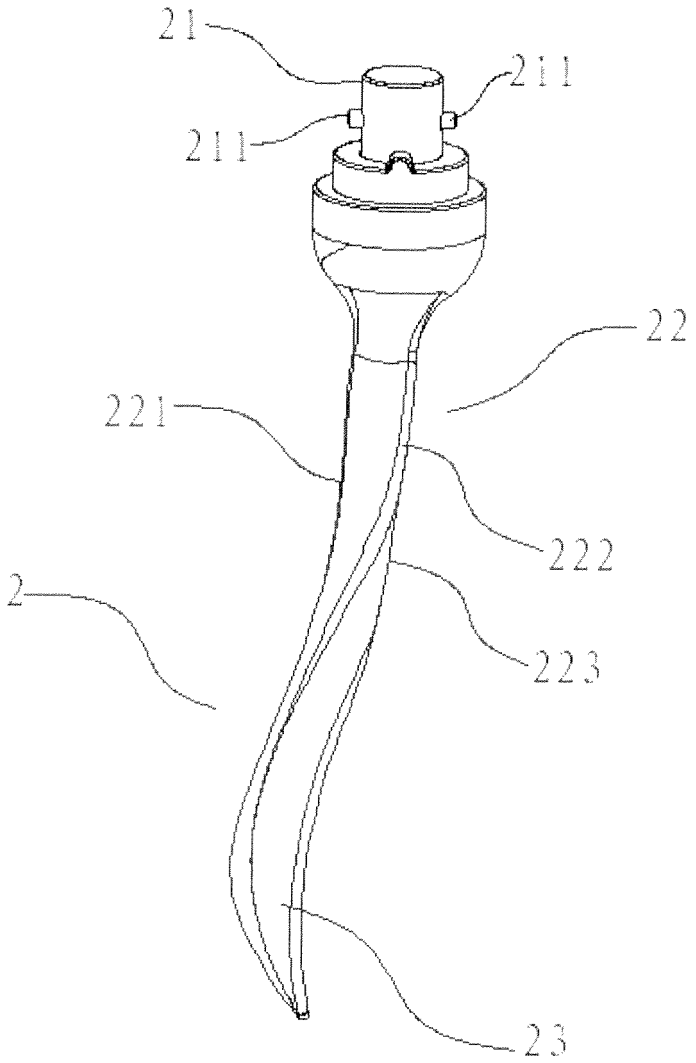


Figure 4

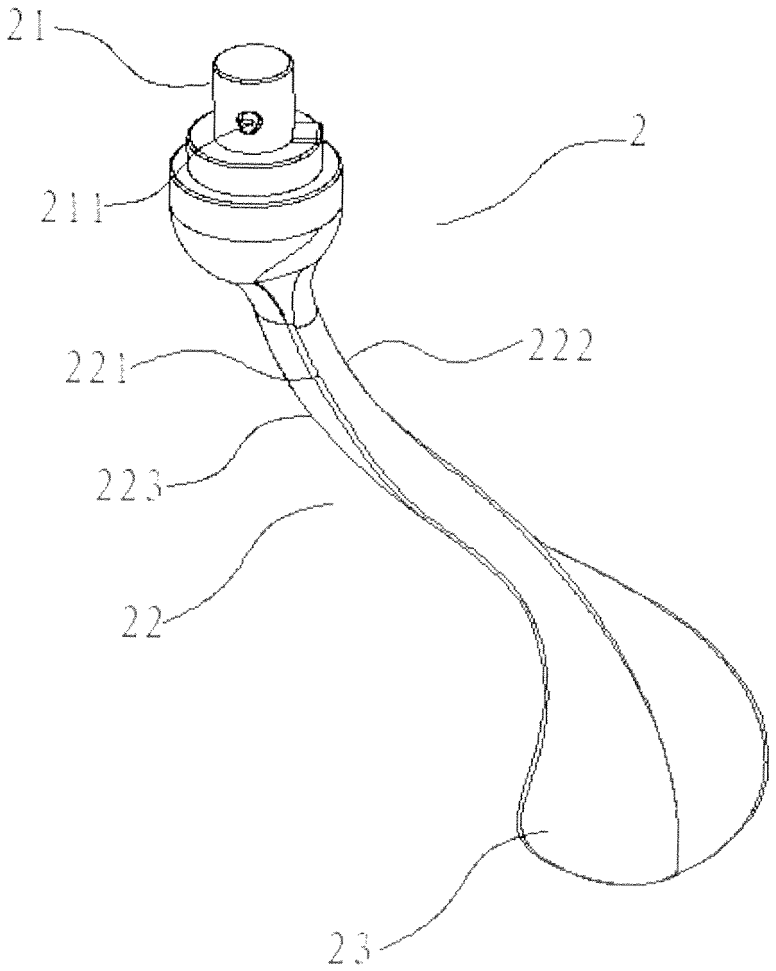


Figure 5

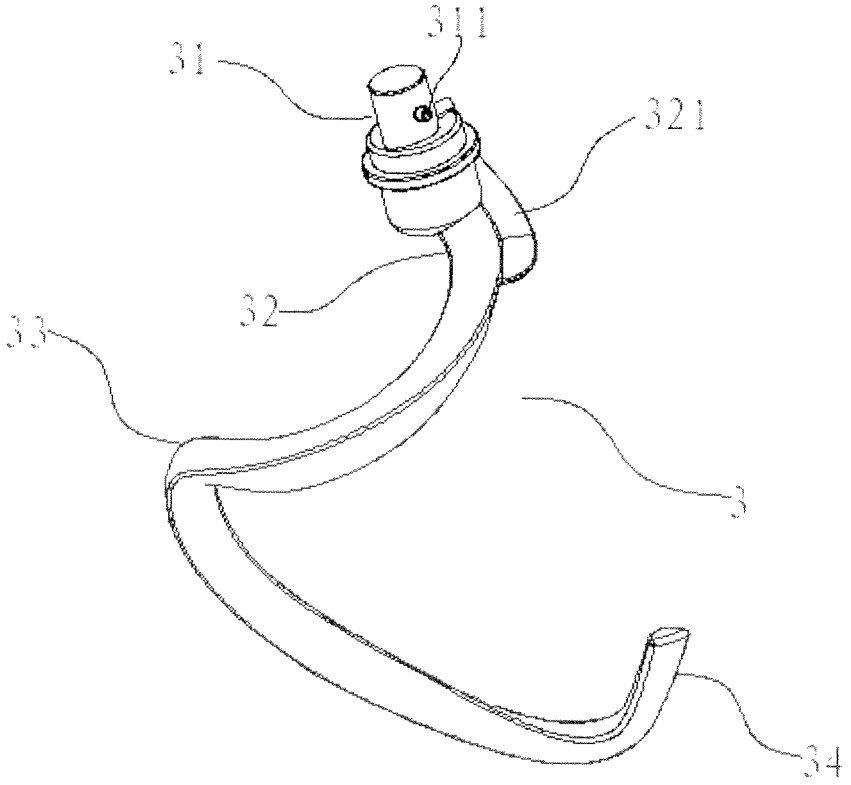


Figure 6

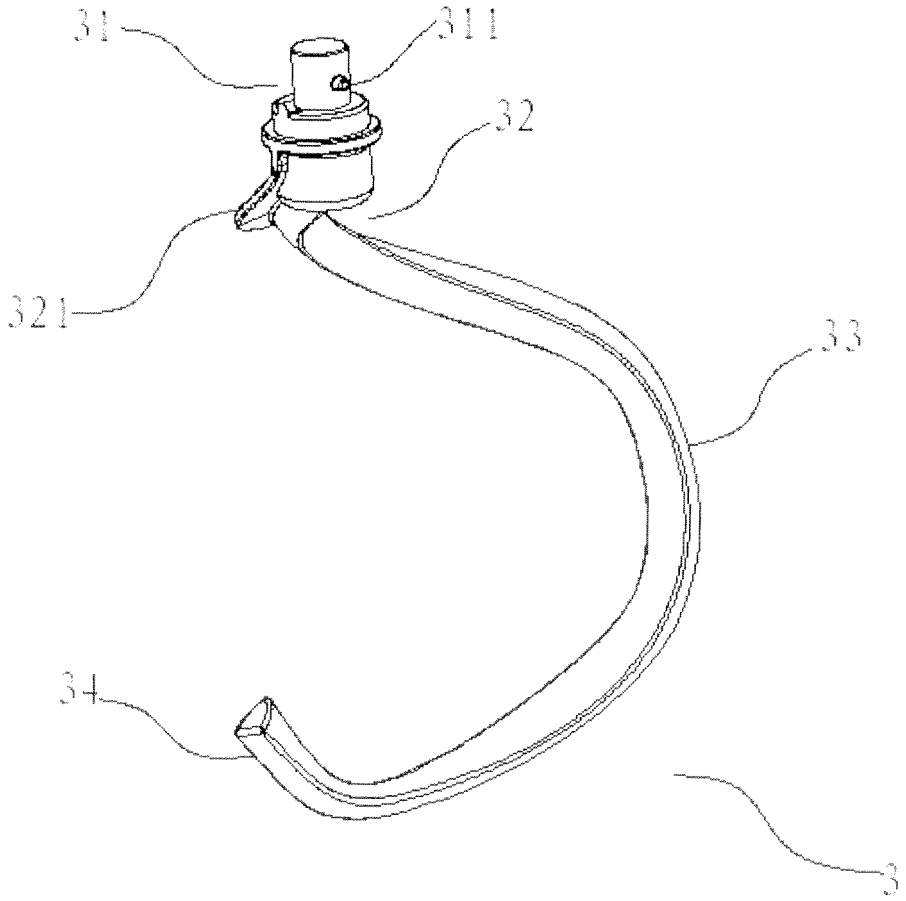


Figure 7

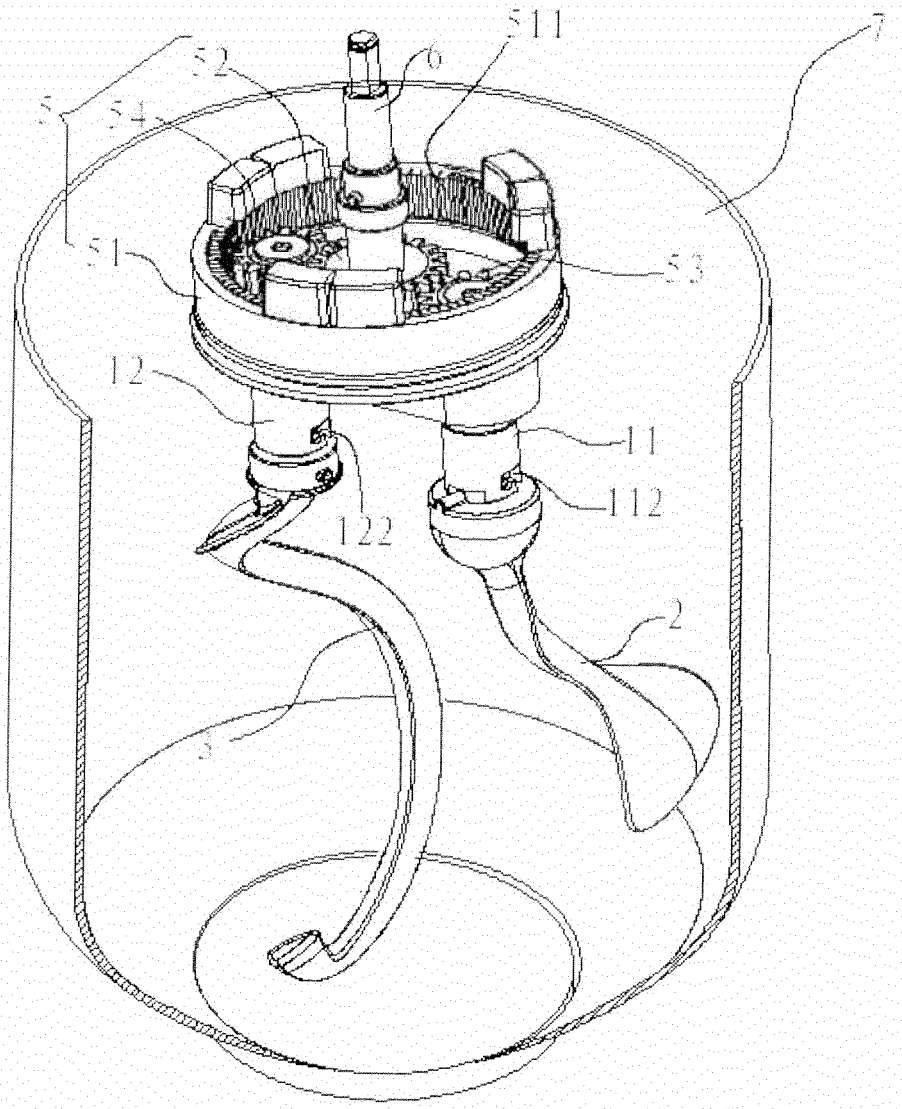


Figure 8

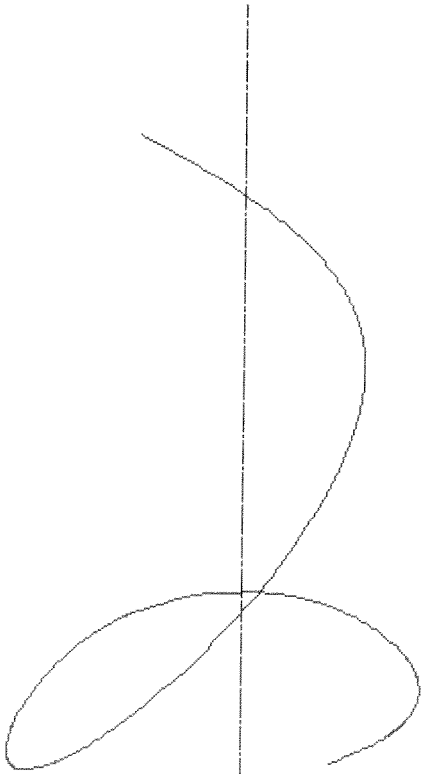


Figure 9

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- DE 2500444 A1 **[0004]**